

What is claimed is:

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5 1. In a multi-streaming processor having a data cache, a system for fetching instructions from individual ones of the multiple streams to a pipeline, comprising:

a fetch algorithm for selecting from which stream to fetch instructions; and

a hit/miss predictor for forecasting whether instructions will hit or miss the data cache;

10 wherein the prediction by the hit-miss predictor is used by the fetch algorithm in determining from which stream to fetch.

2. The system of claim 1 wherein a hit prediction precipitates no change in the fetching process.

15 3. The system of claim 1 wherein a miss prediction results in switching fetching to a different stream.

20 4. The system of claim 1 wherein the hit-miss predictor determines a hit probability, and the probability is used by the fetch algorithm in determining from where to fetch next instructions.

25 5. The system of claim 1 wherein the forecast of the hit/miss predictor is also used by a dispatch algorithm in selecting instructions from the pipeline to dispatch to functional units.

6. A multi-streaming processor comprising:
a data cache;

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a fetch algorithm for selecting from which stream to fetch instructions; and

a hit/miss predictor for predicting whether instructions will hit or miss the cache;

5 wherein a prediction by the hit-miss predictor is used by the fetch algorithm in determining from where stream to fetch.

7. The processor of claim 6 wherein a hit prediction precipitates no change in the fetching process.

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8. The processor of claim 6 wherein a miss prediction results in switching fetching to a different stream.

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9. The processor of claim 6 wherein the hit-miss predictor determines a hit probability, and the probability is used by the fetch algorithm in determining from where to fetch next instructions.

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10. The processor of claim 6 wherein the forecast of the hit/miss predictor is also used by a dispatch algorithm in selecting instructions from the pipeline to dispatch to functional units.

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11. In a multi-streaming processor having a data cache, a method for fetching instructions from individual ones of multiple streams as instruction sources to a pipeline, comprising the steps of:

- (a) making a hit/miss prediction by a predictor as to whether instructions previously fetched will hit or miss the data cache; and
- (b) if the prediction is a miss, altering the source of the fetch.

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12. The method of claim 11 wherein the hit-miss predictor determines a hit probability, and the probability is used in determining fetch source.

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13. The method of claim 11 wherein the forecast of the hit/miss predictor is also used by a dispatch algorithm in selecting instructions to dispatch to functional units.

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